

XXXIX.—*Remarks on the Falces and Maxillæ of Spiders.*

By JOHN BLACKWALL, F.L.S.

[Plate X. figs. 1, 2, 3.]

SPIDERS usually have the groove which is situated on the inner surface of the basal joint of the falces, and receives the terminal joint, or fang, when in a state of repose, armed on each side, to a greater or less extent, with conical, pointed processes which, by a figure of speech, are commonly denominated teeth; but that they are not the homologues of true teeth is rendered sufficiently evident by the fact that the falces do not constitute any part of the oral apparatus, being lethal instruments employed by the Araneidea in seizing, killing, and compressing their prey.

Eminent arachnologists have stated that the species belonging to extensive divisions of the family *Mygalidæ* are entirely destitute of tooth-like processes on the basal joint of the falces; but the fallacy of this opinion may be easily detected by a careful inspection of specimens taken from the genus *Mygale*, the most typical division of the family. In confirmation of the fact that many of the *Mygalidæ* are provided with a longitudinal row of tooth-like processes, situated between two dense fringes of long, curved, red hairs on the inferior surface of the basal joint of their falces, various examples might be adduced; but it will suffice on the present occasion to name the *Mygale ursina* of Koch, the *Mygale zebra* of Walckenaer, and the *Atypus Sulzeri* of Latreille.

Near the extremity of the outer margin of the maxillæ of numerous species of spiders there is a slight dark-coloured ridge, surmounted by a series of extremely minute close-set spines, which I have long known and regarded as contributing to give firmness to the most exposed part of those organs, and as affording some assistance in restraining the action and in the retention of the insects on which such spiders prey. Miss Staveley, on examining this structure under a high degree of magnifying power, has arrived at the conclusion that it may be resolved into a row of minute teeth (Ann. & Mag. Nat. Hist. ser. 3. vol. xvii. p. 399)—an opinion which its connexion with the maxillæ would probably tend to suggest; by its position and conformation, however, it appears to be little, if at all, adapted to aid in the office of mastication.

As the maxillæ of those species of the family *Mygalidæ* that have the palpi articulated at or near their extremity might be expected to present other modifications of structure, it became an object of some interest to subject them to a careful examination; with this view, I dissected several specimens of the *Myga-*

*lidæ*, belonging to different genera, from which I obtained the following results:—In no instance was any appearance of a ridge provided with a series of minute close-set spines observed near the extremity of the outer margin of the maxillæ; but *Mygale ursina* and *Cteniza nidulans* were found to have that deficiency amply compensated by short, distinct, black spines, grouped, apparently without order, on the inferior surface of the base of those organs, towards their inner margin, and to have the apex of the lip also provided with similar spines; *Mygale zebra* has spines at the base of the maxillæ, but none at the extremity of the lip; and *Atypus Sulzeri*, which has the palpi inserted near the base of the maxillæ, on the outer side, is provided with numerous short spines on the inferior surface of those organs, towards the inner margin, but is without any either at their base or at the apex of the lip.

I have hesitated to apply the term teeth to the conspicuous spines at the base and towards the inner margin of the inferior surface of the maxillæ and at the apex of the lip of certain species of the family *Mygalidæ*, notwithstanding that they are employed by them in retaining and also, to some extent, in lacerating their prey; but to a remarkable group of spines, situated on the superior surface of the maxillæ of *Mygale zebra*, and clearly indicating, by its position and structure, that the principal function it performs must be that of mastication, the appellation of teeth appears to be more appropriate. The spines composing this group, which are of a dark-brown colour, and have their pointed extremity directed towards the inner margin of the maxillæ, are fewer in number, enlarged at the extremity, and much longer and more distinct near the posterior end of each group than the closely compacted ones that form its anterior part. These spines, by their figure and arrangement, present a highly interesting subject for inspection under the microscope.

From the foregoing observations it is evident that much careful investigation is yet required to complete our knowledge of the various minute appendages connected with the external organs of spiders and of the purposes to which they are subservient.

#### EXPLANATION OF PLATE X. figs. 1-3.

Fig. 1. The left maxilla and palpus of *Mygale ursina*, magnified: *a*, the spines at the base of the former.

Fig. 2. The lip of *Mygale ursina*, magnified: *b*, the spines at its apex.

Fig. 3. The right maxilla and palpus of *Mygale zebra*, magnified: *c*, the spines on the superior surface of the former.